

ALL-YEAR HIGHWAY
Yosemite National Park Roads and Bridges
Between El Portal and Yosemite Valley
El Portal
Mariposa County
California

HAER NO. CA-150

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
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ALL-YEAR HIGHWAY
(El Portal Road)
Yosemite National Park
HAER No. CA-150

I. INTRODUCTION

Location: All-Year Highway (El Portal Road, California Highway 140), between El Portal and Yosemite Valley, Yosemite National Park, Mariposa County, California.

UTMs: East end: Pohono Bridge
El Capitan quadrangle
11/265140/4177525
West end: El Portal
El Portal quadrangle
11/255300/4173300

Date of Construction: 1907

Designer and Builder: Yosemite Valley Rail Road

Original and Present Owner: Yosemite National Park, National Park Service

Present Use: Park highway

Significance: Built by the Yosemite Valley Railroad to connect its terminus of El Portal with Yosemite National Park, the road defied the conventional wisdom that a road could not be constructed up the rugged Merced River Canyon. The old wagon road was reconstructed by the National Park Service in the 1920s concurrently with the construction by the state of a connecting high-speed motor road from Merced and Mariposa. The low-level road provided access to Yosemite National Park in all seasons, and was a major factor in the subsequent development of winter sports activities in the park.

Project Information: This document was prepared as part of the Yosemite Roads and Bridges Recording Project, conducted in summer 1991 by the Historic American Engineering Record.

Richard H. Quin, Historian

II. HISTORY

Documentation of the All-Year Highway is part of the Yosemite National Park Roads and Bridges Recording Project. HAER No. CA-117, YOSEMITE NATIONAL PARK ROADS AND BRIDGES, contains an overview history of the park roads.

History Of The All-Year Highway

The "Yosemite All-Year Highway" between El Portal and Yosemite Valley was constructed by the Yosemite Valley Rail Road to connect its terminus at El Portal with Yosemite National Park. The company built the wagon road up the Merced River gorge to convey park visitors arriving by train, as the railway was prohibited from entering the park. The road was later rebuilt by the National Park Service as a high-speed motor road to connect with a new state highway from Mariposa. The new low-elevation highway was open all year, and winter use of Yosemite National Park skyrocketed following its completion. The highway (now numbered as California Highway 140 outside the park) today carries much of the park traffic from central California and the Bay area.

The steep, flood-swept lower gorge of the Merced River was long considered too rugged for the construction of a wagon road or trail. The river, which drains the Yosemite Valley and most of the central section of the park, leaves the deep Yosemite Valley and drops through a narrow, precipitous canyon to El Portal. Three miles further down, the South Fork of the Merced joins from the east side, and the river continues down the canyon to Briceburg, where it heads north again away from the present road route. The upper part of the gorge, from Yosemite Valley to El Portal, is a deep, U-shaped valley of obvious glacial origin. Below El Portal, the valley continues to drop in a channel cut by the river through the sedimentary rock of the Sierra foothills above Briceburg.

Although stories about the wonders of the Yosemite Valley were widely circulated by the late 1850s, few visitors made the trip on account of the rugged terrain and lack of roads. The first rough foot trails came up from the South Fork of the Merced in the south (1856) or from Coulterville and Big Oak Flat to the northeast (1856). However, the obvious route into the Yosemite Valley, that is the Merced Canyon, was long rejected as a possibility on account of the rocky gorge and the river's proclivity to flood.

The upper part of the canyon was reached by the "Hite's Cove Trail" in the early 1870s. Travellers could ride in wagons for 18 miles before having to switch to saddle horses. The route followed the South Fork of the Merced River before dropping over to a rough trail up the upper stretch of the Merced Gorge. The trail took its name from the John Hite Mine which it passed. Although the difficult route carried relatively few passengers, it had the advantage over other existing trails of being generally clear of snow in the winter. Part of this route was used a little later by the "Heness Trail," which was constructed from Hite's Cove to Yosemite Valley. This trail followed the ridge between the main Merced River and the South Fork for 6

miles before dropping to the Merced River. It climbed along the river as far as Hennessey's Ranch, where it left the river to intersect with the old Mariposa Trail (from present Wawona) near Grouse Creek. Subscriptions for the trail were taken in 1871 and the road was opened in 1874.¹ Traffic over the saddle trails declined severely when the Coulterville, Big Oak Flat, and Wawona toll roads were completed in 1874 and 1875.

The Coulterville Road (formally the "Coulterville and Yo Semite Turnpike") was completed to Yosemite Valley in 1874. This road, the first wagon road to be completed to Yosemite, dropped to the river 2 miles below the Valley, then followed the north bank of the river into the Valley. The stretch of the Coulterville Road on the Valley floor was later used by other roads, and remains in service today as part of the All-Year Highway and as Northside Drive in the Valley. [See HAER form No. CA-146 for a complete history of the Coulterville Road.]

In 1899, Secretary of War Russell A. Alger appointed a commission to investigate the situation regarding roads in the nine year old Yosemite National Park. As part of its instructions, the commission was to investigate the possibility of the construction of a road up the Merced River to Yosemite Valley.² Although the commissioners inspected the route, Congress appropriated no funds for the construction of a road.

It was not until 1907 that a wagon road was constructed through the upper reach of the Merced Canyon. The builder was the Yosemite Valley Rail Road, which constructed a rail line to El Portal. (The Interior Department barred the railway from extending its line into the park; indeed, the park management had ordered patrolling troops to pull up survey stakes set out by an earlier rail company.) The railway was organized by a consortium of San Francisco and Oakland businessmen in 1902. The rail line was constructed from Merced, following the river through Merced Falls and Briceburg as far as the park boundary. Grading work began in 1905 and the railway was completed two years later. The railway brought substantially increased numbers of visitors, and decimated much of the business of the toll roads. By 1912, the railway was carrying the majority of park visitors, as well as considerable freight traffic, mostly lumber.³

The railway built the wagon road from El Portal up the gorge to a junction with the Coulterville Road, which it followed for the remaining distance into the Valley. (The railway's affiliated livery company paid a fee to the Coulterville and Yo Semite Turnpike Company for use of the final part of the road.) Total cost of the construction of the new road was \$87,000. The railway investors were evidently under the impression that the government would reimburse them for the cost of construction; however, no funds were forthcoming. The government did, however, appropriate \$8,000 for the improvement of existing Valley roads from the juncture with the new road from El Portal.⁴ Travellers could now take a train all the way to the boundary of a park, and had only a ninety-minute ride over the wagon road to reach the Valley. The road was kept open all year, another advantage over the toll

roads, and the railway promoted winter usage with the slogan, "Yosemite--Open All Year."

The Yosemite Valley Rail Road also controlled the Yosemite Transportation Company, which ran stages over the route. The new livery soon was carrying far more passengers than earlier, established stagecoach lines. The Washburn group, whose Yosemite Stage and Transportation Company had a near monopoly on the Wawona Road, lost much of its traffic, and responded by running stages in from El Portal to the Valley and out through Wawona.⁵ The little village of El Portal (Spanish for "The Gateway") became the main entrance to Yosemite National Park.

Although the new rail route provided a much easier way to visit Yosemite, the final drive over the wagon road was still full of discomforts. Travellers were shaken badly on the rough and narrow road, and were beset with the same choking dust. Despite being the newest and easiest way to reach Yosemite, within a year or two park officials were complaining about the inadequacies of the wagon road. Although the first automobiles had arrived in Yosemite in 1900, they were banned from the park roads in 1907.

In his 1909 annual report to the Secretary of the Interior, Major H. C. Benson, Acting Superintendent of Yosemite National Park, reported that the El Portal Road was the chief entry point for most visitors, and was in need of some improvements. Benson suggested that the work should be a major priority:

The need of a good highway from El Portal, the terminus of the Yosemite Valley Railroad, up to the Sentinel Hotel in Yosemite Valley, still overshadows all the other needs of the park....The road from El Portal to Pohono Bridge is still so rocky, dusty, narrow, tortuous, and precipitous as to make a drive over it a painful ordeal.⁶

The park engineer added a description of the existing road:

The road follows the right [north] bank of the Merced River from El Portal for a distance of 10 miles, then crosses to the left bank on the Pohono Bridge and follows the left bank of the river to the Sentinel Hotel, a distance of 5 miles farther. The lower 10 miles of road is through very rocky and rough country, composed of soft, loose granite boulders (sic). This part of the road is very dusty, steep, and rough, and altogether too narrow. Of the 5 miles from Pohono Bridge to the Sentinel Hotel, 1 mile (between the Pohono and El Capitan bridges) is already improved and 1 1/2 miles more the road from El Capitan Bridge to the Sentinel Hotel will be completed under an existing contract with work now in progress. The lower 10 miles of road has 3 miles of steep downhill and 7 miles of road through rough, boulder country. To widen to 21 feet between ditches, to grade, straighten and macadamize this portion of the road will require not less than

\$30,000 per mile for the 3 miles of sidehill work and \$20,000 per mile for the 7 miles of rough boulder country. To complete the 1 1/2 miles from Sentinel Hotel to the end of the existing improved road will take \$15,000 per mile. The entire cost of improving the El Portal-Yosemite road, exclusive of bridges and sprinkling system, is then estimated at \$90,000, plus \$140,000, plus \$22,500, or \$252,500.⁷

The California state legislature passed a bond resolution for the extension of the Merced-Mariposa highway, then under construction, to El Portal in 1909;⁸ however, it would be another eight years before this work commenced.

To deal with the choking dust which irritated many passengers on the road, the park purchased horse-drawn sprinkling equipment for use on the road. Two 5,000-gallon water tanks to supply the sprinklers were constructed on the Valley floor.⁹ Until the road was paved, the park expended considerable labor on battling the granitic dust.

In 1912, Acting Superintendent William W. Forsyth reported that the park roads were being overwhelmed by traffic. He called special attention to the El Portal Road: "The Yosemite-El Portal Road is the main highway into the park. The portion of this road between Pohono Bridge and the park boundary, about 10 miles, is still rocky, narrow and torturous, and it should be widened, straightened, regulated in grade, and metaled."

Automobiles were readmitted to the park in 1913, and the El Portal road was widened and improved. Motor stages were put in service over the road. Numerous visitors brought their cars up to El Portal on the trains. The motor tourist quickly became one of the most important influences on park management decisions. By 1915, motorists' organizations were pushing for year-round access to Yosemite. The existing roads to the Valley were closed by winter snows, and the groups began to lobby for construction of a toll-free "all-year road" from Merced.¹⁰

A scenic, primitive toll road was constructed north from El Portal to the Merced and Tuolumne giant sequoia groves and a connection with the Big Oak Flat Road. The road was built by J. R. Wilson, who ran some of the early automobile stages to Yosemite, at a cost of \$40,000. The unpaved road climbed along Crane Creek towards Foresta on a steady, 8 percent grade. Wilson promoted the road as an integral part of the "Triangle Route." Visitors could depart El Portal, see the big trees, then travel to the Valley before returning to El Portal.¹¹ The little-used road remains one of the more exciting mountain drives in the Yosemite area. (The road has been closed above Foresta, and no longer enters the big tree groves.)

The National Park Service was created in 1916, and one of the first Yosemite Park matters the new agency had to deal with was the inadequate El Portal Road. Although it refused to reimburse the railway company for the costs of building the road, the Park Service assumed maintenance. Funds were quickly

appropriated for improvements and to reduce the grade to a maximum of 6 percent. The first NPS-appointed superintendent for Yosemite National Park, Washington Bartlett Lewis, reported in 1917 that work was underway on the reconstruction of the El Portal Road under a \$75,000 segment of the park's principal appropriation. Some \$30,000 was spent the in first year on improvements. By the end of 1918, 4 of the 8 miles of road had been rebuilt. The first of a long series of hand-laid stone retaining walls along the road were constructed.¹² Lewis noted that the state was expected to have begun work on a new road from Merced. The new park road would be open year-round, and Lewis accurately predicted that its completion would increase the use of the park in the winter:

With the park open in winter to both motorists and visitors by train, and with a new hotel on the floor of the valley to accommodate the winter traffic, Yosemite Park will probably become as famous as any winter resort in the world. The winter snow scenes in Yosemite Park are already famous and it is reported that the snow spectacle to be observed from the Glacier Point Hotel far surpasses even the domes and spires of the valley when clothed in their winter mantles. Yosemite Park also offers opportunities for winter sports that can not be excelled.¹³

Motorists' organizations began to promote construction of a modern highway to Yosemite. On 29 May 1919, the California Highway Association launched a campaign to raise \$1 million for the construction of a paved road from Merced via El Portal to Yosemite Valley. The money would be matched with \$700,000 in state and federal funds to cover all costs of construction. The Association, which was comprised of commercial organizations, automobile dealers and civic bodies, proposed to sell 200,000 shares at \$5.00 each to fund the project. Each of the state's 477,450 registered motorists would be asked to subscribe, and in return would receive a permit to enter Yosemite National Park. Governor William Stephens purchased the first certificate. A new body, the "Yosemite Valley Highway Association," was organized to coordinate promotion for the project, and a two-page advertisement for the endeavor appeared in some California papers on 7 June. To drive home the point, the organization adopted the clear but neither catchy nor grammatical slogan, "If you want this road to travel on and see scenery on, then help build it." The Park Service supported the project and NPS Assistant Director Horace Albright came to California to lobby on its behalf.¹⁴

Increasing travel to Yosemite induced the state to construct the new highway. By 1923, the paved, high-speed motor road had been built from Merced through Mariposa as far as Briceburg, 17 miles below El Portal. That year, the California Highway Commission announced final plans to extend the road through the Merced River canyon to El Portal. The new "All-Year Highway" would be built in accord with modern highway standards on a full 30' width. When completed, Yosemite would be accessible year-round.¹⁵

Announcement of the plans convinced park officials that the El Portal Road from the Valley would have to be upgraded to meet the expected new demands. Park Superintendent Washington B. Lewis pled for assistance in upgrading the park segment. On 9 April 1924, Congress responded with a \$1.5 million appropriation for park road improvements. These funds would be used to pave the El Portal and Valley roads and to make minor improvements to other park routes. By this time, the state had begun work on the Briceburg-El Portal section. Chairman H. J. Brunnier of the California Automobile Association reported that his organization anticipated the road's early completion, and offered a statement of support from the Association: "The all-year road, which is now assured, not only eliminates a steep grade, but gives the State a scenic highway unrivaled in beauty. The association has long sought this improvement."¹⁶

The state road was built by convict labor under the so-called "Alco Plan," named for Julian H. Alco, the sponsor of the act (Assembly Bill #1366) which authorized prison labor in road construction project. "Prisoner-at-Large" camps were on the project site, and workers were transferred from state penitentiaries. The first convict labor camp was established at Briceburg with 167 prisoners transferred from San Quentin and thirty-five free men. The prisoners were paid \$2.10 each day for their work on the road. If any man escaped, an award was posted, and the cost of the award was deducted from the other convicts' pay.¹⁷

By the end of January 1924, a steel suspension bridge was built to transport construction materials across the Merced River at Briceburg; it span survives and now provides access to a Bureau of Land Management recreation area in the lower Merced Gorge. One mile of roadbed was rough graded, and pick-and-shovel work was being carried out on the second mile. Plans were being made to establish a second convict labor camp at El Portal so work could proceed from both ends.¹⁸

In July 1924, an "F. H. Dohany," claiming to be an engineer for the Bureau of Public Roads, appeared at Yosemite. At Camp Curry, he claimed that he was inspecting the work on the All-Year Highway and desired to make arrangements to house thirty men during August; while there, he asked the clerk to cash a check. He also induced one of the highway commissioners to cash another check. The Camp Curry staff grew suspicious, and telegraphed Washington for information on "Dohany." The suspect turned out to be D. E. O'Neill, who had reportedly defrauded a series of hotels. He was arrested by the park rangers and later convicted of defrauding a hotelier (Camp Curry), for which he was sentenced to sixty days in the federal prison at San Francisco; the prosecution considered the additional charge of impersonating a federal official.¹⁹

Storms in November 1924 did considerable damage to the road as the Merced River rose and tore out parts of the grade. In March 1925, an 80' section of

retaining wall at "Windy Point,"* part of which extended 30' below the grade, was replaced.²⁰

The location survey for the reconstruction of the park's section of the road between the El Portal and Pohono Bridge was begun in January 1925 by engineer Burrell; he was replaced in May 1925 by William K. Reed, who oversaw the start of actual construction.²¹

On 10 April 1925, the National Park Service awarded a \$325,825 contract to the V. R. Dennis Company of Sacramento for the surfacing of the 20 miles of road between the park boundary at El Portal and Yosemite Village. The road would be widened and grades rectified before surfacing work commenced. Asphaltic pavement would be used in the Valley, but hydraulic concrete or cement paving would be placed below Pohono Bridge. Dennis installed a rock crusher at the quarry at Pohono Bridge in March, and by the end of April had one 150 men and fifteen teams on the job; 20 men worked at the crusher plant. The paving work began in June 1925 at the junction of the North Valley Road and the El Capitan crossover road, working east and west towards the Village and El Portal. The contractor desired to begin work at El Portal, but the NPS ordered the road built from the Valley, so as to provide a continuous pavement.²² Paving of the circuit road around the Valley had just been completed.

Asphaltic concrete was to be paved on the upper section of the road, and cement-based concrete on the lower part. Grading, widening and grade rectification work was completed in mid-May, and paving work commenced on 10 June, using cement concrete. The hand-laid stone parapet wall was extended along the road; gutters were of hand-laid cobblestone construction. Park Service inspectors rejected the first day's work, and ordered the company to find more competent handlers. The surfacing work was halted in August 1925 when the crushed rock aggregate proved too soft and crushed under the rollers. The Park Service dictated that the contractor draw rock from the nearby talus slopes, but Dennis refused, insisting on using rock from its crusher plant at the Cascades, and threatening to bring suit if its materials were rejected. The work resumed on 31 August, using rock from the Cascades plant, supplemented with other materials from the government crusher at Pohono Bridge. At Arch Rock, a southbound lane bypassing the natural tunnel was constructed in April 1925 on 100 cubic yards of rock fill.²³ Prior to this time, east and west bound traffic passed through the narrow opening in the rock.

At about this time, the Bureau of Public Roads became involved in the project. In July, the BPR, an agency of the U.S. Department of Agriculture, contracted with the Park Service to take over the planning and construction of all major national park roads. BPR engineers tested materials used on the El Portal Road and took over part of the supervision of the project.

* This bend in the road below Arch Rock remains one of the most difficult sections of park road to maintain. Rockslides on the north side of the road, and flooding from the Merced River on the south, have closed the road at "Windy Point" on numerous occasions.

In September 1925, paving of the section of road between the El Capitan crossover road and the Yosemite Village was completed, and the contractor was laying the coarse rock subsurface between the Cascades and Pohono Bridge. Dennis was given explicit instructions to cease using rock from the Cascades and Camp 7 and to begin using rock from the government quarry at Pohono Bridge for the main surface. Materials from the Cascades plant were to be used only for the bottom course, and crushed boulders were to be added to the aggregate. At a meeting with NPS Director Mather in attendance, the BPR secured the contractor's agreement to the instructions.²⁴

The contractor stated that it hoped to pave the road as far west as Pohono Bridge before the arrival of bad weather. Dennis planned to keep on a large crew to continue the grading and preliminary work so that paving could resume in the spring. Two Dennis employees were injured in October, one in a truck accident, the other dragged by a conveyor into a gravel screen. By now, the company had fallen far behind schedule. In November, Superintendent Lewis reported that the project was "very unsatisfactory." When paving was suspended by the cold, the crews were put to work on the rectification of the South Valley Road.²⁵

The state made steady progress on the approach road. In October, a contract for the construction of five "ornamental concrete bridges" over Bear Creek, Slate Gulch, Sweetwater Creek, the South Fork of the Merced River (at Savage's Station) and the Merced proper (just below El Portal) was awarded to Oscar Parlier of Tulare, California, who submitted the low bid of \$32,795. The Briceburg convict labor camp was relocated to the South Fork vicinity, and plans were made to relocate another convict camp on the Kern River to the area in order to provide more workers. This camp opened in November, and by the end of the year, 300 convicts and 75 free men were at work. Two steam shovels were being used.²⁶ About one million cubic yards of earth was moved around Briceburg alone. The road was built 20' wide (not thirty as earlier specified), with a 4" rock surface (later oiled and paved).²⁷

Below El Portal, a rough road was open for 4 miles to the south by January 1926, but the remaining section between El Portal and Briceburg was fast nearing completion, with the final contracts for the work, involving the construction of four bridges, let in April. Park Service officials hoped that the state would not finish its work before the park had completed improvements to its own section between the Valley and El Portal. Their own work was meeting with delays. Such delays were embarrassing, as the state had nearly finished work on their section of the road between El Portal and Briceburg, and the motorists who would use the new route would find an uncompleted road once they arrived in the park; due to the paving work, the road was under a control system with only one lane open at a time. By the end of June, the paving laid from the park line had not reached Arch Rock.²⁸

The old Arch Rock entrance station and gate were removed in July, and a new station was constructed. Dennis Construction Company was now averaging 700'

per day in the paving work, and the speed was expected to increase as the work neared the concrete plant at the quarry site. The state completed the paving work on its section on 31 July and opened the road to traffic; however, the temporary bridges were still in use while the new reinforced concrete spans were under construction. Formal opening ceremonies for the new section were held on 31 July at Clark's Ranch (roughly where the Triangle Road joins the highway between Mariposa and Midpines) with Governor Richardson in attendance. Two plaques recognizing the work of the convict laborers were dedicated.²⁹ This event, incidentally, coincided with the 75th anniversary of the arrival of the Mariposa Battalion in the Yosemite Valley.

Motorists were let onto the new road at the conclusion of the ceremonies, and many promptly suffered flat tires. By the end of the day, the Yosemite National Park Company's "travelling garage" had repaired more than 300 tires; some cars had punctures in all four tires. It was discovered that gravel for the pavement had been taken from an old mine dump, and contained railroad spikes, phonograph needles, and other metal debris. The state highway department removed most of the metal with a strong magnet, but cars continued to suffer punctures until a new surface was applied.

The old stone pillars at the Arch Rock entrance were removed in August. Dennis Construction finished its paving work the first week of September, but the cover was not removed and the road opened to traffic until the end of the month. Due to the company's poor performance, the Park Service determined to let the contract for the paving of the Valley floor roads to another contractor. The bad situation ended even worse, when on 23 September a Dennis Company truck went off the El Portal Road, killing two workers immediately and mortally wounded another two.³⁰

Completion of the All-Year Highway resulted in a vast increase in park visitation. The highway provided a direct link with Merced, a distance of 87 miles as opposed to 93 miles over the primitive Coulterville Road. The All-Year Highway had a maximum gain in elevation of 4,000'; in contrast, the Wawona Road climbed 6,050' and the Big Oak Flat Road 7,250'. In 1924, only 146,070 visitors entered Yosemite National Park. By 1927, this number had more than doubled to 490,030. At Arch Rock, a 51 percent increase in motor cars was registered in 1927. More than 90 percent of park visitors now arrived by private automobile, and most used the new highway.³¹

The opening of the highway was the major factor in the subsequent decline of the Yosemite Valley Rail Road. The railway's business peaked in 1925, and over the next three years, passenger traffic underwent a 78 percent decline. The largest freight account, the Yosemite Lumber Company, suspended operations in 1927, further affecting the line's revenues. In 1928, the railway was carrying an average of only 4.4 passengers a day.³²

The National Park Service experimented on the El Portal Road with a new method of oiling pavement in the spring of 1927. The "California Method" involved spraying 2 1/2 gallons of Gilmore oil per square yard of crushed rock

surface. The system was cheaper than paving roads with concrete, but the Park Service concluded that the process would be best utilized for parking areas, campgrounds, and other areas subject to moderate use.³³

The stone parapet wall or guard rail along the side of the road was greatly extended in 1927 and 1928. The new work was done by the City Improvements Company of San Francisco. In October 1927, 2,000 feet of wall was placed, and the end of the year, more than 2 miles had been completed by the 37 workers involved. The wall was finished in the early spring. The stone was laid in three courses. The first layer was of 18" blocks set as footers or coping stones, on top of which was laid a course of triangular stone blocks. A final course of other triangular blocks, laid in a locking pattern, was then fitted in place. The guard wall is significant as the longest stretch of hand-laid rock work on Yosemite Park roads. NPS landscape architect John B. Wosky reviewed the work, which was accepted by the Park Service on 17 March 1928.³⁴

A decision was reached in January 1927 to move the Arch Rock Entrance Station to the south side of the road. In February, the telegraph line along the road was removed. The roadway at Arch Rock was widened in 1928 to accommodate four lanes of traffic. The two checking stations were moved farther down the road away from the natural tunnel. In 1929, the park moved a checking kiosk that had been at the bottom of the old Big Oak Flat Road near the base of El Capitan to Arch Rock.³⁵

A new toll road from LaGrange, California was proposed in 1929. The turnpike would run to Briceburg and a connection with the All-Year Highway. The road's promoter, E. H. Zion, received a franchise to construct the road, which would shorten the driving distance to Yosemite by 30 miles. He estimated the costs of construction for his road at \$1.5 to \$2 million. Zion was vague about his sources of funding, never mentioning any source of capital except the proceeds from the expected sale of stock. Park officials admitted skepticism about the proposal.³⁶ The road was never built.

Yosemite National Park was now reliably accessible to automobile tourists through the winter season, and many visitors took advantage of increased winter sports opportunities. The National Park Service encouraged the Yosemite Park and Curry Company to construct the opulent Ahwahnee Hotel and winter concessions to attract more visitors. The concessionaire engaged a Swiss winter sports promoter, Ernst des Baillets, to develop cross-country skiing, skating and other activities. These were expanded, and ultimately included figure-skating, ice hockey, dog-teaming and ice carnivals. A ski touring school was established in 1928. In 1929, the park applied to host the 1932 Winter Olympics but was rejected in favor of Lake Placid, New York. The Badger Pass Ski Area opened in 1935.³⁷

A new boundary marker was installed at the park line at El Portal in November 1930. The granite rubble pylon, which supported an illuminated sheet metal sign, was a gift of James H. Schwabacher of Philadelphia, a friend of former

NPS Director Stephen Mather and a long-time benefactor of Yosemite. The old stone pillars which originally marked the entrance were removed.³⁸

Several small rockslides were removed from the road in January 1931; another slide was cleared in October. Three more slides blocked the road in December, and a 42' foot section of retaining wall was undermined by the river.³⁹ This work was all repaired over the next month or so.

Part of the El Portal road was reconstructed in 1931 and 1932. The road shoulders were widened in places and 46 new turnouts were constructed in the summer of 1932. The work required the construction of new dry-laid retaining walls in many places. Special attention was devoted to landscape concerns so as to lessen the impact of road work on the magnificent river gorge.⁴⁰

After enduring nearly a decade of competition from the All-Year Highway, the Yosemite Valley Rail Road went into bankruptcy in 1935. Reorganized as the "Yosemite Valley Railway," the company resumed operations, picking up some additional freight business. In early 1937, the line was actually showing a slight profit. Passenger traffic, however, remained light; less than 2 percent of park visitors arrived that year by train.⁴¹

On 11 December 1937, following a series of warm rains which melted off the early snow pack, a tremendous flood hurtled down the Merced River and the Yosemite and Tenaya Creek watersheds, flooding much of Yosemite Valley and forcing the river far out of its banks. In the Merced Canyon, several miles of the railway line were destroyed, and extensive sections of the El Portal Road were washed out. The metal truss bridge across Cascade Creek was demolished, the Arch Rock Entrance Station was washed off its foundation, and floodwaters again removed a long stretch of the road at Windy Point. Damage at Windy Point alone totalled \$250,000. The road was closed from 10 December to 30 December, and the park was forced to devote significant funds to repair work. Almost 800' of the hand-laid guard wall had to be rebuilt. A new parapet wall was constructed along the river by the Arch Rock ranger station/residence and entrance to divert future floodwaters. The Yosemite Valley Railway line was rebuilt as well, and resumed operations in 1938. Most business consisted of carrying timber for the Yosemite Lumber Company, which had resumed operations.⁴²

The stone retaining walls along the El Portal Road were extended in 1939. One section of granite wall above the powerhouse was thirty feet high, and a 45' long section below the powerhouse dam was 25' high and used 180 cubic yards of rock. The boulders were moved with two derricks operated by hand winches, and the parapet walls were laid by hand. Between 31 May and 7 July 1939, 795 linear feet of wet masonry parapet walls were built at an average rate of 22' per day.⁴³

The Yosemite Valley Railway did not survive World War II. its major freight account, the Yosemite Lumber Company, shut down in 1942, and passenger traffic fell off almost completely as a result of the war. On 31 August 1944, the

company trustees petitioned to abandon the line. Another flood in February 1945 washed out more of trackage, and a bridge fire in August stranded some of the rolling stock. The last run over the line took place on 24 August. The National Park Service considered rebuilding the line in order to maintain an alternate means for visiting the park, but appropriated no funds, and the tracks were soon dismantled.⁴⁴

No longer able to bring in supplies by railway, the Yosemite Park and Curry Company began running large trucks over the All-Year Highway to Yosemite Valley. The natural rock tunnel in Arch Rock proved too low for some of the trucks to pass, and for several years the westbound or exit lane was closed to allow the trucks to pass around the rock. In 1948, park crews enlarged the passage through Arch Rock by blasting out portions of the ceiling with small charges.⁴⁵ Most trucks, buses and large recreational vehicles can now negotiate the entrance, though there are still occasional bypasses for the largest vehicles.

Another crippling flood hit the road in 1950, washing out more than 700' feet of retaining wall and undermining long stretches of the road. The Cascade Creek Bridge was again severely damaged, culverts were clogged, shoulders were washed away, and much debris was deposited on the road. Due to the lack of an inexpensive labor force like the Civilian Conservation Corps, the park had to pay heavily for the repairs. Another flood in 1955 caused extensive damage to the road as far down as El Portal. The Thomas Construction Company of San Francisco repaired this damage in 1956 at a cost of \$149,489.⁴⁶

The park sewerage plant in Bridalveil Meadow was shut down in 1977 and a new facility was put into service at El Portal. A new sewer pipe was laid under the El Portal Road in an accompanying two-year project. Care was taken to minimize the effect of the project on the landscape and the historic stone retaining and parapet walls along the road.⁴⁷

The road is periodically closed by floods and rockslides and fires. High water in 1964, 1969 and 1983 washed out portions of the road.⁴⁸ Rockslides, as recent as March 1990, close the road from time to time. The road was closed in the late summer of 1990 when the Foresta Fire swept down to the road below Arch Rock.

A parkwide road system evaluation was undertaken in 1989 by the National Park Service. The final report identified the El Portal Road as particularly hazardous. Motorists travelling over the road are prone to sideswipes on the sharp curves or collisions with vehicles travelling at too high rates of speed. The road was designed for speeds of 30 miles per hour but is posted at 35; however, many cars travel at vastly greater speeds.⁴⁹

The El Portal Road (or the Arch Rock Road, as it has recently been renamed) runs for 7.75 miles within the park boundaries, measured from the park line to Pohono Bridge. The road carries heavy loads of park traffic, far in excess of its original design capacity. The road remains a narrow artery, only 19'-20'

wide in places. The road was last surfaced in 1977, but has not been substantially widened since 1916. Designation of the Merced River as a scenic river and unstable conditions at Windy Point and other rock cuts prevents the road from being widened. The Park Service has begun the study of alternatives, including conversion of the road to one-way and the construction of a second traffic lane on the south bank of the river, and a possible widening of the road on cantilever sections, split grades or elevated sections.⁵⁰ Some interests are now promoting reconstruction of the railway to Yosemite and the abolition of private automobiles above El Portal. None of these suggestions has yet been adopted. The El Portal Road, passing through the magnificent Merced River gorge, remains one of the most popular entrances to Yosemite.

III. ENDNOTES

1. Carl Parcher Russell, *One Hundred Years in Yosemite* (Berkeley: University of California Press, 1947), 2; Idem, "The Henness Trail to Yosemite Valley," *Yosemite Nature Notes*, Vol. XXXVIII No. 4, April 1958, 48.
2. *Report of the Commission on Roads in Yosemite National Park, California* (Washington, D.C.: U.S.Senate, 56th Congress 1st Session, Document 155, 1899), 3.
3. George H. Drury, compiler, *The Historical Guide to North American Railroads* (Milwaukee, WI: Kalmbach Books, 1985), 360.
4. Mary S. Corcoran, in *Merced County Sun*, 4 February 1916; Linda Wedel Greene, *Yosemite, The Park and Its Resources: A History of the Discovery, Management, and Physical Development of Yosemite National Park, California*, 3 vols. (Washington, D.C.: National Park Service, 1987), I:429.
5. Shirley Sargent, *Yosemite's Historic Wawona* (Yosemite, CA: Flying Spur Press, 1979), 55.
6. Benson, H. C., "Report of the Acting Superintendent of the Yosemite National Park to the Secretary of the Interior, 1909." (Washington, D.C.: Government Printing Office, 1909), 8.
7. *Ibid.*, Appendix A, 14-15.
8. Hazen H. Hunkins to Douglass H. Hubbard, Park Naturalist, 12 July 1961, 1. Yosemite Research Library.
9. William W. Forsyth, Major, Sixth Cavalry, *Report of the Acting Superintendent of the Yosemite National Park, 1911* (Washington, D.C.: Government Printing Office, 1911), 11.
10. Ralph Anderson MSS, n.d., 2. Yosemite Research Library; Robert C. Pavlik, "In Harmony with the Landscape: A History of the Built Environment of the United States" (Master's Thesis, University of California at Santa Barbara, 1986), 45.

11. Sargent, *Yosemite's Rustic Outpost: Foresta-Big Meadow* (Yosemite, CA: Flying Spur Press, 1983), 22.
12. Stephen T. Mather, "Report of the Director of the National Park Service" in *Reports of the Department of the Interior*, 1918, 2 vols. (Washington, D.C.: Government Printing Office, 1919), I:850-51. Photographs of the retaining walls appear following page 66.
13. Washington B. Lewis, Report of the Superintendent of Yosemite National Park, in "Report of the Director of the National Park Service," in *Reports of the Department of the Interior*, 1917 (Washington, D.C.: Government Printing Office, 1917), 843.
14. "Highway Fund was Short in 1919, Too," reprinted from *California Highways and Public Works* (March-April 1953) in *Yosemite Nature Notes*, Vol. XXXIV No. 8, August 1955, 100; Hunkins to Hubbard, 1; advertisement in *Oakland Enquirer*, 7 June 1919; Ralph Anderson, MSS, n.d., 2; Horace M. Albright with Robert Cahn, *The Birth of the National Park Service: The Founding Years, 1913-33* (Salt Lake City, UT: Howe Brothers, 1985), 77.
15. Pavlik, 44-45.
16. *Ibid.*; "Yosemite to be Accessible at All Times," (San Francisco) *Chronicle*, 12 June 1923.
17. Frank Purcell, "A Dramatic Footnote to Yosemite's History," *Yosemite Nature Notes*, Vol. XXVI No. 8, August 1947, 91-92; Hunkins to Hubbard, 1; Ben G. Kline, "Convict-Built Road Realized by Man's Dream," *Oakland Tribune*, 2 May 1926; Leavitt, Acting Superintendent's Monthly Report, January 1924, 17.
18. Leavitt, Acting Superintendent's Monthly Report, January 1924, 16-17.
19. Lewis, Superintendent's Monthly Report, July 1924, 21-22.
20. Leavitt, Acting Superintendent's Monthly Report, March 1925, 8-9; Lewis, Superintendent's Monthly Report, April 1925, 10.
21. Leavitt, Acting Superintendent's Monthly Report, March 1925, 8-9; Lewis, Superintendent's Monthly Report, April 1925, 10; Superintendent's Monthly Report, May 1925, 16.

22. Lewis, Superintendent's Monthly Report, April 1925, 10-11; Superintendent's Monthly Report, July 1925, 9; Leavitt, Acting Superintendent's Monthly Report, June 1925, 11.

23. Lewis, Superintendent's Monthly Report, August 1925, 10-12.

24. Leavitt, Acting Superintendent's Monthly Report, September 1925, 10-11.

25. Ibid., 21; Lewis, Superintendent's Monthly Report, October 1925, 5, 11; Superintendent's Monthly Report, November 1925, 1.

26. Lewis, Superintendent's Monthly Report, October 1925, 5; Superintendent's Monthly Report, December 1925, 4. Parlier built the three small bridges at the foot of Bridalveil Fall (HAER Nos. CA-91, CA-92, and CA-93) in 1913.

27. "Highway Fund was Short in 1919, Too," 100.

28. Leavitt, Acting Superintendent's Monthly Report, January 1926, 2, 5; Acting Superintendent's Monthly Report, February 1926, 1-2; Acting Superintendent's Monthly Report, March 1926, 5-6; Acting Superintendent's Monthly Report, June 1926, 3-4; Lewis, Superintendent's Monthly Report, April 1926, 5-6; Superintendent's Monthly Report, April 1926; Superintendent's Monthly Report, May 1926, 3-4.

29. Leavitt, Acting Superintendent's Monthly Report, July 1926, 4, 8.

30. Leavitt, Acting Superintendent's Monthly Report, August 1926, 4; Acting Superintendent's Monthly Report, September 1926, 4, 10.

31. "Tourist Travel to Yosemite Valley," 1; James V. Lloyd, Yosemite Park Interpretive Ranger, to Leavitt, November 1927, attached to Leavitt, Acting Superintendent's Monthly Report, November 1927; Allen Kress Fitzsimmons, "The Effect of the Automobile on the Cultural Elements of the Yosemite Valley" (Masters Thesis, San Fernando Valley State College, January 1969).

32. Leavitt, Acting Superintendent's Monthly Report, January 1924, 6; Acting Superintendent's Monthly Report, January 1928, 8-9; Drury, 360.

33. Lewis, Superintendent's Monthly Report, May 1927, 2.

34. Leavitt, Acting Superintendent's Monthly Report, October 1927, 8-9; Acting Superintendent's Monthly Report, November 1927, 7; Acting Superintendent's Monthly Report, December 1927, 4; Acting Superintendent's Monthly Report, March 1928, 5.

35. National Register of Historic Places nomination for the Arch Rock Entrance Station, Sec. 8, p. 1-2; Greene, II:854.

36. Leavitt, Acting Superintendent's Monthly Report, January 1929, 7; Charles Goff Thomson, Superintendent's Monthly Report, March 1929, 7.

37. Greene, II:663, 670.

38. Thomson, Superintendent's Monthly Report, November 1930, 4; Arch Rock National Register nomination, Sec. 8 p. 2.

39. Thomson, Superintendent's Monthly Report, January 1931, 5; Superintendent's Monthly Report, October 1931, 4; Superintendent's Monthly Report, December 1931, 5.

40. Idem, Superintendent's Monthly Report, August 1932, 6; Pavlik, 51-52; Arch Rock National Register nomination, Sec. 8 p. 2.

41. Drury, 360-61; "1937 Travel Report," attached to Lawrence C. Merriam, Acting Superintendent's Monthly Report, September 1937; Russell, *One Hundred Years*, 69-70.

42. Pavlik, 53; Drury, 361.

43. Arch Rock National Register nomination, Sec. 8 p. 2.

44. Drury, 361; Alfred Runte, "Blueprint for Comfort: A National Park-to-Park Railway," in Eugenia Horstman Connally (ed.), *National Parks in Crisis* (Washington, D.C.: National Parks & Conservation Association, 1982), 116.

45. Completion Report, Arch Rock Enlargement, 1948, 2. Yosemite National Park Maintenance and Engineering Office.

46. Greene, II:796; Fitzsimmons, 57.

47. Arch Rock Entrance Station National Register nomination, Sec. 8 p. 2.
48. Pavlik, 53-54.
49. National Park Service, *Yosemite National Park Road System Evaluation: Parkwide Road Evaluation Study* (Denver, CO: National Park Service, Denver Service Center, May 1989), 3-9.
50. *Ibid.*, 381.

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